SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	:	BECKER LUBE S 100

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture	:	Lubricant
Recommended restrictions on use	:	Reserved for industrial and professional use.

1.3 Details of the supplier of the safety data sheet

Supplier	:	**Gebr. Becker GmbH** Hölker Feld 29-31 D-42279 Wuppertal
Telephone	:	(+49) 0202 697-0
Telefax	:	(+49) 0202 666-0855
Email Contact for Safety Data Sheet	:	If you have any enquiries about the content of this SDS please email info@becker-international.com

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Long-term (chronic) aquatic hazard, Category 3	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard statements : H412 Harmful to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P273 Avoid release to the environment.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Additional Labelling

EUH208 Contains N-1-naphthylaniline. May produce an allergic reaction.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
N-1-naphthylaniline	90-30-2 201-983-0 01-2119488704-27-xxxx	Acute Tox. 4; H302 Skin Sens. 1B; H317 STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 0.25 - < 1

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

If inhaled	:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Call a physician or poison control centre immediately. If breathing is difficult, give oxygen. Keep respiratory tract clear.
In case of skin contact	:	Wash off with soap and plenty of water. If symptoms persist, call a physician. Take off contaminated clothing and wash before reuse.
In case of eye contact	:	If eye irritation persists, consult a specialist.
If swallowed	:	Rinse mouth with water. If victim is fully conscious, give a cupful of water. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Do not give milk or alcoholic beverages. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	No information available.
Risks	:	No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry powder
Unsuitable extinguishing media	:	High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting	:	Burning produces noxious and toxic fumes.

5.3 Advice for firefighters

Special protective equipment for firefighters	:	Wear full protective clothing and self-contained breathing apparatus.
Further information	:	Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Material can create slippery conditions.

6.2 Environmental precautions

Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities. The product should not be allowed to enter drains, water courses or the soil.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Prevent further leakage or spillage if safe to do so. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	For personal protection see section 8. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510)	:	12, Non Combustible Liquids
Further information on storage stability	:	No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s)	:	Lubricant

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
N-1-naphthylaniline	Workers	Inhalation	Long-term systemic effects	0.18 mg/m3
	Workers	Inhalation	Acute systemic effects	44 mg/m3
	Workers	Dermal	Long-term systemic effects	0.05 mg/kg
	Workers	Dermal	Acute systemic effects	6.67 mg/kg
	General exposures	Inhalation	Long-term systemic effects	0.044 mg/m3
	General exposures	Inhalation	Acute systemic effects	33 mg/m3
	General exposures	Dermal	Long-term systemic effects	0.03 mg/kg
	General exposures	Dermal	Long-term systemic effects	3.33 mg/kg
	General exposures	Ingestion	Long-term systemic effects	0.03 mg/kg
	General exposures	Ingestion	Acute systemic effects	8 mg/kg

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
N-1-naphthylaniline	Fresh water	0.0002 mg/l
	Marine water	0.00002 mg/l
	Fresh water sediment	0.0344 mg/kg
	Marine sediment	0.00344 mg/kg
	Soil	0.0068 mg/kg
	STP	100 mg/l

8.2 Exposure controls

Personal protective equipment

Eye protection	:	Eye wash bottle with pure water Tightly fitting safety goggles
Hand protection Remarks	:	Polyvinyl alcohol or nitrile- butyl-rubber gloves Before removing gloves clean them with soap and water.
Skin and body protection	:	Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	:	No personal respiratory protective equipment normally required. In case of insufficient ventilation, wear suitable respiratory equipment. Use respiratory protective equipment when using this product at elevated temperatures (see section 8).

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	light yellow
Odour	:	mild
Odour Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	250 °C Method: ASTM D 92
Evaporation rate	:	No data available
Upper explosion limit / Upper flammability limit	:	Not applicable
Lower explosion limit / Lower flammability limit	:	Not applicable
Vapour pressure	:	No data available
Relative vapour density	:	No data available

Relative density	:	No data available
Density	:	0.957 g/cm3 (15.6 °C)
Solubility(ies)		
Water solubility	:	slightly soluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	98.5 mm2/s (40 °C)

9.2 Other information

Flammability (liquids)	:	Not classified as supporting combustion according to the transport regulations.
Molecular weight	:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Stable under recommended storage conditions.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Stable under recommended storage conditions., No decomposition if used as directed.

10.4 Conditions to avoid

Conditions to avoid	:	Heat

10.5 Incompatible materials

Materials to avoid	:	Strong acids and strong bases

10.6 Hazardous decomposition products

Hazardous decomposition products	:	Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure :

Inhalation
Eye contact
Skin contact
Skin Absorption

Acute toxicity

Product:

Acute oral toxicity : Remarks: Not classified due to lack of data.

Acute inhalation toxicity : Remarks: Not classified due to lack of data.

Components:

N-1-naphthylaniline:

Acute oral toxicity : LD50 (Rat): 1,625 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): > 5,000 mg/kg

Skin corrosion/irritation

Components:

N-1-naphthylaniline:

Species : Rabbit
Method : Draize Test
Result : No skin irritation

Serious eye damage/eye irritation

Components:

N-1-naphthylaniline:

Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation

Respiratory or skin sensitisation

Components:

N-1-naphthylaniline:

Test Type : Maximisation Test
Species : Guinea pig
Result : Probability or evidence of low to moderate skin sensitisation rate in humans

Germ cell mutagenicity

Components:

N-1-naphthylaniline:

Genotoxicity in vitro	:	Test Type: Ames test Metabolic activation: with and without metabolic activation Result: negative Test Type: Chinese Hamster Ovary (CHO) Metabolic activation: with and without metabolic activation Result: negative
Genotoxicity in vivo	:	Test Type: in vivo assay Species: Mouse (male) Result: negative
Germ cell mutagenicity- Assessment	:	Animal testing did not show any mutagenic effects., Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Components:

N-1-naphthylaniline:

Carcinogenicity - Assessment	:	Animal testing did not show any carcinogenic effects.

Reproductive toxicity

Product:

Reproductive toxicity - Assessment	:	No data available

STOT - single exposure

Product:

Remarks	:	No data available

STOT - repeated exposure

Components:

N-1-naphthylaniline:

Exposure routes	:	Oral
Target Organs	:	Liver, Kidney
Assessment	:	May cause damage to organs through prolonged or repeated exposure.

SECTION 12: Ecological information

12.1 Toxicity

Components:

N-1-naphthylaniline:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.44 mg/l Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.68 mg/l Exposure time: 48 h Test Type: semi-static test Analytical monitoring: yes
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to microorganisms	:	EC50 (Protozoa): 2 mg/l Exposure time: 48 h EC50 (Bacteria): > 10,000 mg/l Exposure time: 3 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.02 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Analytical monitoring: yes
M-Factor (Chronic aquatic toxicity)	:	1

12.2 Persistence and degradability

Product:

Biodegradability	:	Remarks: No data available

Components:

N-1-naphthylaniline:

Biodegradability	:	Test Type: aerobic Inoculum: activated sludge Concentration: 100 mg/l Result: According to the results of tests of biodegradability this product is not readily biodegradable. Biodegradation: 0 % Exposure time: 28 d Method: OECD Test Guideline 301 GLP: yes

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: No data available

Components:

N-1-naphthylaniline:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Exposure time: 56 d
Temperature: 25 °C
Concentration: 0.1 mg/l
Bioconcentration factor (BCF): 427 - 2,730

Partition coefficient: n-octanol/water : log Pow: 4.28

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of wastes in an approved waste disposal facility.
The product should not be allowed to enter drains, water courses or the soil.
In accordance with local and national regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.

Contaminated packaging : Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Remarks	:	Not classified as dangerous in the meaning of transport regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EC) No 850/2004 on persistent organic pollutants	:	Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Not applicable

Water contaminating class (Germany)	:	WGK 1 slightly hazardous to water Classification according to AwSV, Annex 1 (5.2)

The components of this product are reported in the following inventories:

DSL	:	All components of this product are on the Canadian DSL
AICS	:	On the inventory, or in compliance with the inventory
NZIoC	:	Not in compliance with the inventory

ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
US.TSCA	:	All substances listed as active on the TSCA inventory

15.2 Chemical safety assessment

No information available.

SECTION 16: Other information

Full text of H-Statements

H302	:	Harmful if swallowed.
H317	:	May cause an allergic skin reaction.
H373	:	May cause damage to organs through prolonged or repeated exposure if swallowed.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not

Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:		**Classification procedure:**
Aquatic Chronic 3	H412	Calculation method

Further information

Gebr. Becker is not the manufacturer. The information in this publication is based on the specifications of our suppliers, and its reliability has not been proved by us. Therefore we are not responsible for any liability for any loss or damage caused by use of any information in this publication.
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Annex: Exposure Scenarios

Table of Contents

Number	Title
ES 1	Formulation or re-packing; Formulation of preparations; Lubricants, greases, release products; (N-1-naphthylaniline, CAS: 90-30-2).
ES 2	Use at industrial sites; General exposures; Lubricants, greases, release products; Engine lubricant service; (N-1-naphthylaniline, CAS: 90-30-2).
ES 3	Widespread use by professional workers; General exposures; Lubricants, greases, release products; Engine lubricant service; In-door use; (N-1-naphthylaniline, CAS: 90-30-2).
ES 4	Widespread use by professional workers; General exposures; Lubricants, greases, release products; Engine lubricant service; Out-door use; (N-1-naphthylaniline, CAS: 90-30-2).
ES 5	Use at industrial sites; General exposures (open systems); Lubricants, greases, release products; Corrosion inhibitors; Dipping; Spraying; Rolling, Brushing; (N-1-naphthylaniline, CAS: 90-30-2).
ES 6	Widespread use by professional workers; General exposures (open systems); Lubricants, greases, release products; Corrosion inhibitors; Dipping; Spraying; Rolling, Brushing; Indoor use.
ES 7	Widespread use by professional workers; General exposures (open systems); Lubricants, greases, release products; Corrosion inhibitors; Dipping; Spraying; Rolling, Brushing; Out-door use.
ES 8	Use at industrial sites; Lubricants, greases, release products; Treatment by heating; (open systems).

ES 1: Formulation or re-packing; Formulation of preparations; Lubricants, greases, release products; (N-1-naphthylaniline, CAS: 90-30-2).

1.1. Title section

Exposure Scenario name	:	Formulation of preparations, Lubricants, greases, release products
Structured Short Title	:	Formulation or re-packing; Formulation of preparations; Lubricants, greases, release products; (N-1-naphthylaniline, CAS: 90-30-2).
Substance	:	N-1-naphthylaniline EC-No.: 201-983-0 Registration number: 01-2119488704-27-xxxx

Environment		
CS 1	**Formulation of preparations**	ERC2
Worker		
CS 2	**Use in closed process, no likelihood of exposure**	PROC1
CS 3	**Use in closed, continuous process with occasional controlled exposure**	PROC2
CS 4	**Use in closed batch process (synthesis or formulation)**	PROC3
CS 5	**Use in batch and other process (synthesis) where opportunity for exposure arises**	PROC4
CS 6	**Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)**	PROC5
CS 7	**Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities**	PROC8a
CS 8	**Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**	PROC8b
CS 9	**Transfer of substance or preparation into small containers (dedicated filling line, including weighing)**	PROC9
CS 10	**Use as laboratory reagent**	PROC15

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Formulation of preparations (ERC2)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	233.33 kg
Annual amount per site	:	70000 kg
Release type	:	Intermittent use/release
Emission days	:	300
Technical and organisational conditions and measures		
Product must not be released into water without pre-treatment.		
Soil emission controls are not applicable as there is no direct release to soil.		
Conditions and measures related to sewage treatment plant		
STP type	:	Municipal sewage treatment plant
STP effluent	:	2,000 m3/d
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Can be incinerated, when in compliance with local regulations.
Other conditions affecting environmental exposure		
Receiving surface water flow	:	18,000 m3/d
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Emission or Release Factor: Air Worst case assumption 0.005 %		
Emission or Release Factor: Water Worst case assumption 0 %		
Emission or Release Factor: Soil Worst case assumption 0 %		

1.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 100 % (unless stated differently).		
Physical form of product	:	Liquid substance
Vapour pressure	:	< 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 480 min

Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently). 5 days/week
Technical and organisational conditions and measures		
Handle substance within a closed system. Provide a basic standard of general ventilation (1 to 3 air changes per hour).		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Body parts exposed	:	240 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

1.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics		
<=27%		
Physical form of product	:	Liquid substance
Vapour pressure	:	< 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 480 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently). 5 days/week
Technical and organisational conditions and measures		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Handle substance within a closed system. Use only in area provided with appropriate exhaust ventilation. Inhalation - minimum efficiency of 90 %		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 95 %		

Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

1.2.4. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics		
<=27%		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently). 5 days/week
Technical and organisational conditions and measures		
Provide extraction ventilation at points where emissions occur. Inhalation - minimum efficiency of 90 %		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Body parts exposed	:	240 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

1.2.5. Control of worker exposure: Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4)

Product (article) characteristics
<=27%

Physical form of product	:	Liquid mixture
Vapour pressure	:	< 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Use frequency	:	5 days/week
Technical and organisational conditions and measures		
Provide extraction ventilation at points where emissions occur. Inhalation - minimum efficiency of 90 %		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

1.2.6. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics		
Limit the substance content in the product to 10 %.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	< 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Use frequency	:	5 days/week
Technical and organisational conditions and measures		
Provide extraction ventilation at points where emissions occur. Inhalation - minimum efficiency of 90 %		
General standard operating procedures to control routine activities		

Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

1.2.7. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 100 % (unless stated differently).		
Physical form of product	:	Solid, low dustiness
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 60 min
Use frequency	:	5 days/week
Technical and organisational conditions and measures		
Provide extraction ventilation at points where emissions occur. Inhalation - minimum efficiency of 90 %		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

1.2.8. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 100 % (unless stated differently).		
Physical form of product	:	Solid, low dustiness
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 60 min
Use frequency	:	5 days/week
Technical and organisational conditions and measures		
Provide extraction ventilation at points where emissions occur. Inhalation - minimum efficiency of 95 %		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

1.2.9. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics		
<=27%		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Technical and organisational conditions and measures		
Provide extraction ventilation at points where emissions occur.		

Inhalation - minimum efficiency of 90 %		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

1.2.10. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 100 % (unless stated differently).		
Physical form of product	:	Solid, low dustiness
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Technical and organisational conditions and measures		
Provide extraction ventilation at points where emissions occur. Inhalation - minimum efficiency of 90 %		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training. Dermal - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Body parts exposed	:	240 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Formulation of preparations (ERC2)

Protection Target	Exposure estimate	RCR
Fresh water	0.000007 mg/L (EASY TRA v4.1)	0.033
Marine water	0.0000007 mg/L (EASY TRA v4.1)	0.034
Fresh water sediment	0.000026 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Marine sediment	0.0000027 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Soil	0.0000027 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Sewage treatment plant	< 0.0000001 mg/L (EASY TRA v4.1)	< 0.001

1.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.091 mg/m³ (EASY TRA v4.1)	0.508
dermal	systemic	long-term	0.002 mg/kg bw/day (EASY TRA v4.1)	0.034

1.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.01 mg/m³ (ECETOC TRA worker v3)	0.054
dermal	systemic	long-term	0.019 mg/kg bw/day (ECETOC TRA worker v3)	0.37

1.3.4. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Exposure route	Health effect	Exposure indica-	Exposure esti-	RCR

		tor	mate	
inhalative	systemic	long-term	0.091 mg/m³ (ECETOC TRA worker v3)	0.508
dermal	systemic	long-term	0.009 mg/kg bw/day (ECETOC TRA worker v3)	0.185

1.3.5. Worker exposure: Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.055 mg/m³ (ECETOC TRA worker v3)	0.305
dermal	systemic	long-term	0.022 mg/kg bw/day (ECETOC TRA worker v3)	0.444

1.3.6. Worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.033 mg/m³ (ECETOC TRA worker v3)	0.183
dermal	systemic	long-term	0.016 mg/kg bw/day (ECETOC TRA worker v3)	0.329

1.3.7. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.01 mg/m³ (EASY TRA v4.1)	0.056
dermal	systemic	long-term	0.017 mg/kg bw/day (RISKOFDERM v2.1)	0.336

1.3.8. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.001 mg/m³ (EASY TRA v4.1)	0.006
dermal	systemic	long-term	0.017 mg/kg bw/day (RISKOFDERM v2.1)	0.336

1.3.9. Worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.055 mg/m³ (ECETOC TRA worker v3)	0.305
dermal	systemic	long-term	0.022 mg/kg bw/day (ECETOC TRA worker v3)	0.444

1.3.10. Worker exposure: Use as laboratory reagent (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.006 mg/m³ (EASY TRA v4.1)	0.033
dermal	systemic	long-term	0.010 mg/kg bw/day (EASY TRA v4.1)	0.206

1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

ES 2: Use at industrial sites; General exposures; Lubricants, greases, release products; Engine lubricant service; (N-1-naphthylaniline, CAS: 90-30-2).

2.1. Title section

Exposure Scenario name	:	General exposures, Lubricants, greases, release products, Engine lubricant service
Structured Short Title	:	Use at industrial sites; General exposures; Lubricants, greases, release products; Engine lubricant service; (N-1-naphthylaniline, CAS: 90-30-2).
Substance	:	N-1-naphthylaniline EC-No.: 201-983-0 Registration number: 01-2119488704-27-xxxx

Environment			
CS 1	**Industrial use of processing aids in processes and products, not becoming part of articles**	ERC4	
Worker			
CS 2	**Use in closed process, no likelihood of exposure**		PROC1
CS 3	**Use in closed, continuous process with occasional controlled exposure**		PROC2
CS 4	**Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**		PROC8b
CS 5	**Transfer of substance or preparation into small containers (dedicated filling line, including weighing)**		PROC9

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	100 kg
Annual amount per site	:	30000 kg
Release type	:	Intermittent use/release
Emission days	:	300

Technical and organisational conditions and measures		
Product must not be released into water without pre-treatment.		
Soil emission controls are not applicable as there is no direct release to soil.		
Conditions and measures related to sewage treatment plant		
STP type	:	Municipal sewage treatment plant
STP effluent	:	2,000 m3/d
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Can be incinerated, when in compliance with local regulations.
Other conditions affecting environmental exposure		
Receiving surface water flow	:	18,000 m3/d
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Emission or Release Factor: Air Worst case assumption 0.005 %		
Emission or Release Factor: Water Worst case assumption 0 %		
Emission or Release Factor: Soil Worst case assumption 0 %		

2.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		

Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Body parts exposed	:	240 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

2.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

2.2.4. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

2.2.5. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		

Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

Protection Target	Exposure estimate	RCR
Fresh water	0.0000067 mg/L (EASY TRA v4.1)	0.033
Marine water	0.0000007 mg/L (EASY TRA v4.1)	0.034
Fresh water sediment	0.000026 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Marine sediment	0.0000027 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Soil	0.0000012 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Sewage treatment plant	< 0.0000001 mg/L (EASY TRA v4.1)	< 0.001

2.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.018 mg/m³ (EASY TRA v4.1)	0.102
dermal	systemic	long-term	< 0.001 mg/kg bw/day (EASY TRA v4.1)	0.007

2.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.097 mg/m³ (ECETOC TRA worker v3)	0.541
dermal	systemic	long-term	0.003 mg/kg bw/day (ECETOC TRA worker v3)	0.069

2.3.4. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.110 mg/m³ (ECETOC TRA worker v3)	0.609
dermal	systemic	long-term	0.008 mg/kg bw/day (ECETOC TRA worker v3)	0.165

2.3.5. Worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.097 mg/m³ (ECETOC TRA worker v3)	0.541
dermal	systemic	long-term	0.007 mg/kg bw/day (ECETOC TRA worker v3)	0.137

2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

ES 3: Widespread use by professional workers; General exposures; Lubricants, greases, release products; Engine lubricant service; In-door use; (N-1-naphthylaniline, CAS: 90-30-2).

3.1. Title section

Exposure Scenario name	:	General exposures, Lubricants, greases, release products, Engine lubricant service, Indoor use
Structured Short Title	:	Widespread use by professional workers; General exposures; Lubricants, greases, release products; Engine lubricant service; In-door use; (N-1-naphthylaniline, CAS: 90-30-2).
Substance	:	N-1-naphthylaniline EC-No.: 201-983-0 Registration number: 01-2119488704-27-xxxx

Environment		
CS 1	**Wide dispersive indoor use of substances in closed systems**	ERC9a
Worker		
CS 2	**Use in closed process, no likelihood of exposure**	PROC1
CS 3	**Use in closed, continuous process with occasional controlled exposure**	PROC2
CS 4	**Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities**	PROC8a
CS 5	**Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**	PROC8b
CS 6	**Heat and pressure transfer fluids in dispersive, professional use but closed systems**	PROC20

3.2. Conditions of use affecting exposure

3.2.1. Control of environmental exposure: Wide dispersive indoor use of substances in closed systems (ERC9a)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount for wide dispersive uses	:	0.002 kg
Annual amount for wide disperse	:	15000 kg

uses		
Release type	:	Intermittent use/release
Emission days	:	365
Technical and organisational conditions and measures		
Product must not be released into water without pre-treatment.		
Conditions and measures related to sewage treatment plant		
STP type	:	Municipal sewage treatment plant
STP effluent	:	2,000 m3/d
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Can be incinerated, when in compliance with local regulations.
Other conditions affecting environmental exposure		
Receiving surface water flow	:	18,000 m3/d
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Emission or Release Factor: Air Worst case assumption 0.01 %		
Emission or Release Factor: Water Worst case assumption 0.05 %		
Emission or Release Factor: Soil Worst case assumption 0.1 %		

3.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		

Ensure adequate ventilation, especially in confined areas.		
Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	240 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

3.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

3.2.4. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

3.2.5. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		

Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

3.2.6. Control of worker exposure: Heat and pressure transfer fluids in dispersive, professional use but closed systems (PROC20)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Technical and organisational conditions and measures		
Provide extraction ventilation at points where emissions occur.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

3.3. Exposure estimation and reference to its source

3.3.1. Environmental release and exposure: Wide dispersive indoor use of substances in closed systems (ERC9a)

Protection Target	Exposure estimate	RCR
Fresh water	0.0000067 mg/L (EASY TRA v4.1)	0.034
Marine water	0.0000007 mg/L (EASY TRA v4.1)	0.035
Fresh water sediment	0.000026 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Marine sediment	0.0000027 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Soil	< 0.0000001 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Sewage treatment plant	0.0000005 mg/L (EASY TRA v4.1)	< 0.001

3.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.009 mg/m³ (EASY TRA v4.1)	0.051
dermal	systemic	long-term	< 0.001 mg/kg bw/day (EASY TRA v4.1)	0.007

3.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.091 mg/m³ (EASY TRA v4.1)	0.508
dermal	systemic	long-term	0.014 mg/kg bw/day (EASY TRA v4.1)	0.274

3.3.4. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.055 mg/m³ (ECETOC TRA worker v3)	0.305
dermal	systemic	long-term	0.008 mg/kg bw/day (ECETOC TRA worker v3)	0.165

3.3.5. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.055 mg/m³ (ECETOC TRA worker v3)	0.305
dermal	systemic	long-term	0.008 mg/kg bw/day (ECETOC TRA worker v3)	0.165

3.3.6. Worker exposure: Heat and pressure transfer fluids in dispersive, professional use but closed systems (PROC20)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.055 mg/m³ (EASY TRA v4.1)	0.305
dermal	systemic	long-term	0.017 mg/kg bw/day (EASY TRA v4.1)	0.343

3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

ES 4: Widespread use by professional workers; General exposures; Lubricants, greases, release products; Engine lubricant service; Out-door use; (N-1-naphthylaniline, CAS: 90-30-2).

4.1. Title section

Exposure Scenario name	:	General exposures, Lubricants, greases, release products, Engine lubricant service, Outdoor use
Structured Short Title	:	Widespread use by professional workers; General exposures; Lubricants, greases, release products; Engine lubricant service; Out-door use; (N-1-naphthylaniline, CAS: 90-30-2).
Substance	:	N-1-naphthylaniline EC-No.: 201-983-0 Registration number: 01-2119488704-27-xxxx

Environment		
CS 1	**Wide dispersive outdoor use of substances in closed systems**	ERC9b
Worker		
CS 2	**Use in closed process, no likelihood of exposure**	PROC1
CS 3	**Use in closed, continuous process with occasional controlled exposure**	PROC2
CS 4	**Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities**	PROC8a
CS 5	**Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**	PROC8b
CS 6	**Heat and pressure transfer fluids in dispersive, professional use but closed systems**	PROC20

4.2. Conditions of use affecting exposure

4.2.1. Control of environmental exposure: Wide dispersive outdoor use of substances in closed systems (ERC9b)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount for wide dispersive uses	:	0.002 kg
Annual amount for wide disperse	:	15000 kg

uses		
Release type	:	Intermittent use/release
Emission days	:	365
Conditions and measures related to sewage treatment plant		
STP type	:	none
STP effluent	:	2,000 m3/d
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Can be incinerated, when in compliance with local regulations.
Other conditions affecting environmental exposure		
Receiving surface water flow	:	18,000 m3/d
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Emission or Release Factor: Air Worst case assumption 0.01 %		
Emission or Release Factor: Water Worst case assumption 0.05 %		
Emission or Release Factor: Soil Worst case assumption 0.1 %		

4.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	240 cm2
Indoor or outdoor use	:	Outdoor

4.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Outdoor

4.2.4. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		

Duration	:	Exposure duration < 240 min
Technical and organisational conditions and measures		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Outdoor

4.2.5. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Technical and organisational conditions and measures		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Outdoor

4.2.6. Control of worker exposure: Heat and pressure transfer fluids in dispersive, professional use but closed systems (PROC20)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Technical and organisational conditions and measures		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Outdoor

4.3. Exposure estimation and reference to its source

4.3.1. Environmental release and exposure: Wide dispersive outdoor use of substances in closed systems (ERC9b)

Protection Target	Exposure estimate	RCR
Fresh water	0.0000067 mg/L (EASY TRA v4.1)	0.034
Marine water	0.0000007 mg/L (EASY TRA v4.1)	0.035
Fresh water sediment	0.000026 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Marine sediment	0.0000027 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Soil	< 0.0000001 mg/kg dry weight (EASY TRA v4.1)	< 0.001

4.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.006 mg/m³ (EASY TRA v4.1)	0.036
dermal	systemic	long-term	< 0.001 mg/kg bw/day (EASY TRA v4.1)	0.007

4.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.064 mg/m³ (EASY TRA v4.1)	0.355
dermal	systemic	long-term	0.013 mg/kg bw/day (EASY TRA v4.1)	0.274

4.3.4. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.038 mg/m³ (ECETOC TRA worker v3)	0.213
dermal	systemic	long-term	0.008 mg/kg bw/day (ECETOC TRA worker v3)	0.165

4.3.5. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.038 mg/m³ (ECETOC TRA worker v3)	0.213
dermal	systemic	long-term	0.008 mg/kg bw/day (ECETOC TRA worker v3)	0.165

4.3.6. Worker exposure: Heat and pressure transfer fluids in dispersive, professional use but closed systems (PROC20)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.038 mg/m³ (EASY TRA v4.1)	0.213
dermal	systemic	long-term	0.017 mg/kg bw/day (EASY TRA v4.1)	0.343

4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

ES 5: Use at industrial sites; General exposures (open systems); Lubricants, greases, release products; Corrosion inhibitors; Dipping; Spraying; Rolling, Brushing; (N-1-naphthylaniline, CAS: 90-30-2).

5.1. Title section

Exposure Scenario name	:	General exposures (open systems), Use of lubricants and greases, Corrosion inhibitors, Rolling, Brushing, Dipping, Spraying
Structured Short Title	:	Use at industrial sites; General exposures (open systems); Lubricants, greases, release products; Corrosion inhibitors; Dipping; Spraying; Rolling, Brushing; (N-1-naphthylaniline, CAS: 90-30-2).
Substance	:	N-1-naphthylaniline EC-No.: 201-983-0 Registration number: 01-2119488704-27-xxxx

Environment		
CS 1	**Industrial use of processing aids in processes and products, not becoming part of articles**	ERC4
Worker		
CS 2	**Use in closed process, no likelihood of exposure**	PROC1
CS 3	**Use in closed, continuous process with occasional controlled exposure**	PROC2
CS 4	**Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**	PROC8b
CS 5	**Transfer of substance or preparation into small containers (dedicated filling line, including weighing)**	PROC9
CS 6	**Roller application or brushing**	PROC10
CS 7	**Treatment of articles by dipping and pouring**	PROC13

5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	100 kg

Annual amount per site	:	30000 kg
Release type	:	Intermittent use/release
Emission days	:	300
Technical and organisational conditions and measures		
Product must not be released into water without pre-treatment.		
Soil emission controls are not applicable as there is no direct release to soil.		
Conditions and measures related to sewage treatment plant		
STP type	:	Default industrial size
STP effluent	:	2,000 m3/d
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Can be incinerated, when in compliance with local regulations.
Other conditions affecting environmental exposure		
Receiving surface water flow	:	18,000 m3/d
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Emission or Release Factor: Air Worst case assumption 0.005 %		
Emission or Release Factor: Water Worst case assumption 0 %		
Emission or Release Factor: Soil Worst case assumption 0 %		

5.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).

Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Body parts exposed	:	240 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

5.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor

Assumes a good basic standard of occupational hygiene is implemented

5.2.4. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Dermal - minimum efficiency of 98 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

5.2.5. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 60 min
Technical and organisational conditions and measures		

Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

5.2.6. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Technical and organisational conditions and measures		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Use only in area provided with appropriate exhaust ventilation. Dermal - minimum efficiency of 90 %		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

5.2.7. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Dermal - minimum efficiency of 98 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

Protection Target	Exposure estimate	RCR
Fresh water	0.0000067 mg/L (EASY TRA v4.1)	0.033
Marine water	0.0000007 mg/L (EASY TRA v4.1)	0.034
Fresh water sediment	0.000026 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Marine sediment	0.0000027 mg/kg dry weight	< 0.001

	(EASY TRA v4.1)	
Soil	0.0000012 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Sewage treatment plant	< 0.0000001 mg/L (EASY TRA v4.1)	< 0.001

5.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.018 mg/m³ (EASY TRA v4.1)	0.102
dermal	systemic	long-term	< 0.001 mg/kg bw/day (EASY TRA v4.1)	0.007

5.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.097 mg/m³ (ECETOC TRA worker v3)	0.541
dermal	systemic	long-term	0.003 mg/kg bw/day (ECETOC TRA worker v3)	0.069

5.3.4. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.110 mg/m³ (ECETOC TRA worker v3)	0.609
dermal	systemic	long-term	0.008 mg/kg bw/day (ECETOC TRA worker v3)	0.165

5.3.5. Worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indica-	Exposure esti-	RCR

		tor	mate	
inhalative	systemic	long-term	0.037 mg/m³ (ECETOC TRA worker v3)	0.203
dermal	systemic	long-term	0.003 mg/kg bw/day (ECETOC TRA worker v3)	0.069

5.3.6. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.009 mg/m³ (ECETOC TRA worker v3)	0.051
dermal	systemic	long-term	0.014 mg/kg bw/day (ECETOC TRA worker v3)	0.274

5.3.7. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.097 mg/m³ (ECETOC TRA worker v3)	0.541
dermal	systemic	long-term	0.014 mg/kg bw/day (ECETOC TRA worker v3)	0.274

5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

ES 6: Widespread use by professional workers; General exposures (open systems); Lubricants, greases, release products; Corrosion inhibitors; Dipping; Spraying; Rolling, Brushing; Indoor use.

6.1. Title section

Exposure Scenario name	:	General exposures (open systems), Use of lubricants and greases, Corrosion inhibitors, Rolling, Brushing, Dipping, Spraying, Indoor use
Structured Short Title	:	Widespread use by professional workers; General exposures (open systems); Lubricants, greases, release products; Corrosion inhibitors; Dipping; Spraying; Rolling, Brushing; Indoor use.
Substance	:	N-1-naphthylaniline EC-No.: 201-983-0 Registration number: 01-2119488704-27-xxxx

Environment		
CS 1	**Wide dispersive indoor use of processing aids in open systems**	ERC8a
Worker		
CS 2	**Use in closed process, no likelihood of exposure**	PROC1
CS 3	**Use in closed, continuous process with occasional controlled exposure**	PROC2
CS 4	**Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities**	PROC8a
CS 5	**Roller application or brushing**	PROC10
CS 6	**Treatment of articles by dipping and pouring**	PROC13

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	0.822 kg
Annual amount for wide disperse uses	:	6000 kg

Release type	:	Intermittent use/release
Emission days	:	365
Technical and organisational conditions and measures		
Product must not be released into water without pre-treatment.		
Soil emission controls are not applicable as there is no direct release to soil.		
Conditions and measures related to sewage treatment plant		
STP type	:	Municipal sewage treatment plant
STP effluent	:	2,000 m3/d
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Can be incinerated, when in compliance with local regulations.
Other conditions affecting environmental exposure		
Receiving surface water flow	:	18,000 m3/d
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Emission or Release Factor: Air Worst case assumption 0.010 %		
Emission or Release Factor: Water Worst case assumption 0.050 %		
Emission or Release Factor: Soil Worst case assumption 0.100 %		

6.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		

Handle substance within a closed system.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	240 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

6.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

6.2.4. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

6.2.5. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Application rate	:	0.2 L/min
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		

General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Ensure that direction of application is only downward.		

6.2.6. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

6.3. Exposure estimation and reference to its source

6.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Protection Target	Exposure estimate	RCR
Fresh water	0.0000067 mg/L (EASY TRA v4.1)	0.033
Marine water	0.0000007 mg/L (EASY TRA v4.1)	0.034
Fresh water sediment	0.000026 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Marine sediment	0.0000027 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Soil	< 0.0000001 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Sewage treatment plant	0.0000002 mg/L (EASY TRA v4.1)	< 0.001

6.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.009 mg/m³ (EASY TRA v4.1)	0.051
dermal	systemic	long-term	< 0.001 mg/kg bw/day (EASY TRA v4.1)	0.007

6.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.091 mg/m³ (EASY TRA v4.1)	0.508
dermal	systemic	long-term	0.014 mg/kg bw/day (EASY TRA v4.1)	0.274

6.3.4. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.055 mg/m³ (ECETOC TRA worker v3)	0.305
dermal	systemic	long-term	0.008 mg/kg bw/day (ECETOC TRA worker v3)	0.165

6.3.5. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.01 mg/m³ (ART)	0.054
dermal	systemic	long-term	0.038 mg/kg bw/day (RISKOFDERM v2.1)	0.76

6.3.6. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.091 mg/m³ (ECETOC TRA worker v3)	0.508
dermal	systemic	long-term	0.014 mg/kg bw/day (ECETOC TRA worker v3)	0.274

6.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

ES 7: Widespread use by professional workers; General exposures (open systems); Lubricants, greases, release products; Corrosion inhibitors; Dipping; Spraying; Rolling, Brushing; Outdoor use.

7.1. Title section

Exposure Scenario name	:	General exposures (open systems), Use of lubricants and greases, Corrosion inhibitors, Rolling, Brushing, Dipping, Spraying, Outdoor use
Structured Short Title	:	Widespread use by professional workers; General exposures (open systems); Lubricants, greases, release products; Corrosion inhibitors; Dipping; Spraying; Rolling, Brushing; Outdoor use.
Substance	:	N-1-naphthylaniline EC-No.: 201-983-0 Registration number: 01-2119488704-27-xxxx

Environment		
CS 1	**Wide dispersive outdoor use of processing aids in open systems**	ERC8d
Worker		
CS 2	**Use in closed process, no likelihood of exposure**	PROC1
CS 3	**Use in closed, continuous process with occasional controlled exposure**	PROC2
CS 4	**Roller application or brushing**	PROC10

7.2. Conditions of use affecting exposure

7.2.1. Control of environmental exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	0.822 kg
Annual amount for wide disperse uses	:	6000 kg
Release type	:	Intermittent use/release
Emission days	:	365

Technical and organisational conditions and measures		
Product must not be released into water without pre-treatment.		
Soil emission controls are not applicable as there is no direct release to soil.		
Conditions and measures related to sewage treatment plant		
STP type	:	none
STP effluent	:	2,000 m3/d
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Can be incinerated, when in compliance with local regulations.
Other conditions affecting environmental exposure		
Receiving surface water flow	:	18,000 m3/d
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Emission or Release Factor: Air Worst case assumption 0.010 %		
Emission or Release Factor: Water Worst case assumption 0.050 %		
Emission or Release Factor: Soil Worst case assumption 0.100 %		

7.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Handle substance within a closed system.		
General standard operating procedures to control routine activities		

Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	240 cm2
Indoor or outdoor use	:	Outdoor
Assumes a good basic standard of occupational hygiene is implemented		

7.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics		
Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Outdoor
Assumes a good basic standard of occupational hygiene is implemented		

7.2.4. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics

Covers percentage substance in the product up to 1 %.		
Physical form of product	:	Liquid mixture
Vapour pressure	:	> 10 hPa
Amount used (or contained in articles), frequency and duration of use/exposure		
Application rate	:	0.2 L/min
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
General standard operating procedures to control routine activities Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Outdoor
Assumes a good basic standard of occupational hygiene is implemented		
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Ensure that direction of application is only downward.		

7.3. Exposure estimation and reference to its source

7.3.1. Environmental release and exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Protection Target	Exposure estimate	RCR
Fresh water	0.0000067 mg/L (EASY TRA v4.1)	0.033
Marine water	0.0000007 mg/L (EASY TRA v4.1)	0.034
Fresh water sediment	0.000026 mg/kg dry weight (EASY TRA v4.1)	< 0.001
Marine sediment	0.0000027 mg/kg dry weight	< 0.001

	(EASY TRA v4.1)	
Soil	< 0.0000001 mg/kg dry weight (EASY TRA v4.1)	< 0.001

7.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.006 mg/m³ (EASY TRA v4.1)	0.036
dermal	systemic	long-term	< 0.001 mg/kg bw/day (EASY TRA v4.1)	0.007

7.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.064 mg/m³ (EASY TRA v4.1)	0.355
dermal	systemic	long-term	0.014 mg/kg bw/day (EASY TRA v4.1)	0.274

7.3.4. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.01 mg/m³ (ART)	0.054
dermal	systemic	long-term	0.038 mg/kg bw/day (RISKOFDERM v2.1)	0.76

7.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

ES 8: Use at industrial sites; Lubricants, greases, release products; Treatment by heating; (open systems).

8.1. Title section

Exposure Scenario name	:	Treatment by heating, Lubricants, greases, release products, (open systems)
Structured Short Title	:	Use at industrial sites; Lubricants, greases, release products; Treatment by heating; (open systems).
Substance	:	N-1-naphthylaniline EC-No.: 201-983-0 Registration number: 01-2119488704-27-xxxx

Environment		
CS 1	**Industrial use of processing aids in processes and products, not becoming part of articles**	ERC4
Worker		
CS 2	**Use in closed process, no likelihood of exposure**	PROC1
CS 3	**Use in closed, continuous process with occasional controlled exposure**	PROC2
CS 4	**Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**	PROC8b
CS 5	**Treatment of articles by dipping and pouring**	PROC13

8.2. Conditions of use affecting exposure

8.2.1. Control of environmental exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	20 kg
Annual amount per site	:	6000 kg
Release type	:	Intermittent use/release
Emission days	:	300
Technical and organisational conditions and measures		
Product must not be released into water without pre-treatment.		

Conditions and measures related to sewage treatment plant		
STP type	:	Municipal sewage treatment plant
STP effluent	:	2,000 m3/d
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Can be incinerated, when in compliance with local regulations.
Other conditions affecting environmental exposure		
Receiving surface water flow	:	18,000 m3/d
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Emission or Release Factor: Air Worst case assumption 0.005 %		
Emission or Release Factor: Water Worst case assumption < 0.001 %		
Emission or Release Factor: Soil Worst case assumption 0 %		

8.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Dermal - minimum efficiency of 95 %		
Other conditions affecting workers exposure		

Body parts exposed	:	240 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

8.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Dermal - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		

8.2.4. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration < 240 min

Technical and organisational conditions and measures		
Ensure adequate ventilation, especially in confined areas.		
Ensure operatives are trained to minimise exposures.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Suitable mask with particle filter P3 (European Norm 143) Dermal - minimum efficiency of 98 % Inhalation - minimum efficiency of 98 %		
Other conditions affecting workers exposure		
Body parts exposed	:	960 cm2
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		
Process Temperature 123 °C		

8.2.5. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics		
Covers the percentage of the substance in the product up to 5%.		
Physical form of product	:	Liquid mixture
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Exposure duration > 240 min
Use frequency	:	Covers daily exposures up to 8 hours (unless stated differently).
Technical and organisational conditions and measures		
Ensure operatives are trained to minimise exposures.		
Use only in area provided with appropriate exhaust ventilation. Inhalation - minimum efficiency of 90 %		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. Suitable mask with particle filter P3 (European Norm 143) Dermal - minimum efficiency of 98 % Inhalation - minimum efficiency of 98 %		

Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Assumes a good basic standard of occupational hygiene is implemented		
Process Temperature 123 °C		

8.3. Exposure estimation and reference to its source

8.3.1. Environmental release and exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

Protection Target	Exposure estimate	RCR
Fresh water	0.000007 mg/L (EUSES v2.1)	0.033
Marine water	0.0000007 mg/L (EUSES v2.1)	0.034
Fresh water sediment	0.000026 mg/kg dry weight (EUSES v2.1)	< 0.01
Marine sediment	0.0000027 mg/kg dry weight (EUSES v2.1)	< 0.01
Soil	0.0000003 mg/kg dry weight (EUSES v2.1)	< 0.001
Sewage treatment plant	< 0.0000001 mg/L (EUSES v2.1)	< 0.001

8.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.018 mg/m³ (EASY TRA v4.1)	0.102
dermal	systemic	long-term	< 0.001 mg/kg bw/day (EASY TRA v4.1)	0.007

8.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.097 mg/m³ (ECETOC TRA)	0.541

dermal	systemic	long-term	0.003 mg/kg bw/day (ECETOC TRA)	0.069

8.3.4. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.110 mg/m³ (ECETOC TRA)	0.609
dermal	systemic	long-term	0.008 mg/kg bw/day (ECETOC TRA)	0.165

8.3.5. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.037 mg/m³ (ECETOC TRA)	0.203
dermal	systemic	long-term	0.014 mg/kg bw/day (ECETOC TRA)	0.274

8.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.